

# Application of teaching mode based on VR display and interaction

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## Abstract

*In the context of rapid social and economic development, traditional classroom teaching mode has been unable to meet the needs of educational guidance. In order to continuously expand students' thinking consciousness and imagination ability, and scientifically solve the problems of single teaching method and limited learning content in the past, the education field proposes to realize a teaching system based on VR display and interactive design. Actively cultivate students' ability of independent learning and independent thinking. Therefore, after understanding the teaching system architecture based on VR display and interaction, this paper deeply discusses the practical teaching model and evaluation system according to the application characteristics of the system, so as to clarify the direction and measures for the application of micro-R technology in the future education field.*

## Keywords

*VR display; Interaction design; Teaching mode; Virtual experiment; Exploratory learning.*

## Introduction

Under the influence of traditional educational concepts, as an effective measure of educational guidance, infusing education mode limits the basic framework for learning, thinking and carrying out activities to a certain extent. It will transfer knowledge and skills through repeated learning and training. Although it can achieve the expected teaching goals in a short time, it will make students lose their interest in learning and desire to explore. Therefore, in the innovation and development of social economy and information technology, the education field has begun to use modern technology to improve the original teaching mode, design and realize the teaching system with VR display and interaction as the core, transform the original static teaching mode into an interactive active learning mode, and finally create rich and interesting teaching classrooms for students.

## 1. Teaching system analysis based on VR display and interaction

The exhibition hall is used to present the learned knowledge and guide students to interact and participate in learning in an immersive virtual environment. The overall design framework includes the fourth part of scene design, technical framework, content screening and theoretical basis. Compared with the traditional irrigation teaching mode, this teaching system has the following advantages: First of all, the biggest problem in the current education field is the lack of perfect technical equipment, which cannot meet the learning needs of

students of different majors. In order to build a teaching system based on VR display and interaction, virtual experiment equipment can be used to replace real event equipment, so that students can complete experimental exploration and knowledge understanding in a virtual environment. Secondly, in order to ensure the safety of practical teaching, some dangerous experimental activities will be replaced by video teaching, which is difficult for students to operate and analyze directly. However, the introduction of VR interactive system can reduce the probability of security risks, help students to repeatedly study and analyze theoretical knowledge and application technology, and avoid unnecessary security accidents. Finally, the VR interactive system can get rid of the constraints of time and space, use virtual technology to simulate the experimental environment and operating conditions, and achieve the goal that traditional teaching cannot achieve [1].

## **2. Application analysis of teaching mode based on VR display and interaction**

### **2.1. Virtual experiments**

Using VR interactive display system to build different types of virtual laboratories and applying them in practical teaching of different disciplines can not only scientifically plan teaching funds, but also solve problems such as resource shortage through virtual experiments, fully mobilize students' interest in learning and exploration, accelerate the pace of practical education model reform, and guide the innovative development of discipline construction in the new era. In addition, in the education work with many restrictions, damage to the health of teachers and students and high risk, schools should comprehensively consider whether to design and implement a teaching system based on VR display and interaction, whether to directly replace the traditional practical teaching mode, and create a virtual laboratory with environmental protection and safety, so as to further improve the level of education implementation in our country.

## **3. Exploration and learning**

Unlike traditional practical teaching, VR interactive system does not consume too much teaching materials, can provide all-weather services according to the teaching needs of teachers and students, and can fully mobilize students' interest in independent exploration and active participation, which is an important manifestation of the innovation and development of modern education [2]. For example, when learning electronic and electrical related disciplines, students do not need to buy any electronic devices, but can directly design and realize their own ideas in the virtual experimental environment, and verify the feasibility of the circuit under different experimental conditions. When learning environment-related knowledge, students only need to build a model of the greenhouse effect in the virtual experiment environment, and then they can think about the influencing factors of the greenhouse effect from different angles. From the perspective of long-term development in the field of education, the teaching mode based on VR display and interaction meets the spiritual needs of academic exploration.

### **3.1. Evaluation system**

In the VR display and interactive teaching mode, students can study and explore independently according to the project tasks and learning process set by teachers, so teachers should design a new dynamic teaching mode evaluation system, and follow the following principles: First, adhere to the professional nature of the evaluation system; Secondly, the evaluation content should be targeted. Finally, it is necessary to ensure that the assessment content corresponds to the later practical training operation. Among them, the actual operation evaluation content of the virtual link is shown in the following table:

Table 1 Actual operation evaluation table of virtual link

evaluating indicator	Specific standards	Specific score	
Completed on time (10 points) Operation error (20 points) Wiring linkage (35 points)	You can complete this project research independently Proficient in operating the technical software Specific standards	Complete	8-10
		Complete most of it	4-7
		Most of them are not finished	1-3
Parameter design (20 points) Reporting performance (10 points) Proficiency (5 points)	You can complete this project research independently	Correct specification	15-20
		exactness	8-14
		Not quite correct	1-7
evaluating indicator Completed on time (10 points) Operation error (20 points)	Can analyze the whole process of wiring linkage according to the project requirements		10
	Be able to draw specific flow charts based on the relationship between the entities		10
	Can tly complete wiring linkage		15
Wiring linkage (35 points)	Be able to set the parameters correctly		20
Parameter design (20 points)	During the reporting period, I was dignified and elegant, fluent in language expression, and clear in	protruding	6-10
Reporting performance (10 points)		preferably	1-5

	logical thinking		
Proficiency (5 points)	Ability to complete various operations skillfully		

During the classroom teaching, the dynamic assessment system with VR system as the core is designed, which can effectively reduce the cost of time and manpower, use technical equipment to obtain more accurate evaluation results, and provide effective basis for follow-up education guidance [3].

#### 4. Conclusion

To sum up, VR technology theory, as a hot topic in the current research and exploration in the field of education, not only changes people's understanding of traditional tools, but also creates a rich and interesting teaching mode for teachers and students. Therefore, in the future education field, we should continue to explore how to implement the teaching mode of VR display and interaction.

#### References

- [1] Jianhao Ding , Yigang Wang , Shan Guo . Virtual interactive experimental platform for advertising space planning [J]. Laboratory Research and Exploration, 2019,39(2):92-94,140. (in Chinese)
- [2] Chang-kai Gao , Ling-kai Meng , Qichao Liang , et al. Interactive experiential teaching of medical botany practice based on VR technology [J]. Chinese Modern Distance Education of Traditional Chinese Medicine, 2019,18(22):23-25.
- [3] Hui Nie , Baiping Huang . A study on the Innovation of College English Teaching Model from the perspective of VR/AR technology: A Case Study on the training of new engineering talents in science and engineering colleges [J]. Journal of University of Shanghai for Science and Technology (Social Sciences Edition), 2019,42(2):108-113.